3GPP TSG-SA WG2 meeting #23   **Tdoc S2-020886**
Sophia Antipolis, France, 18 – 22 February 2002

Title:	**Liaison Statement Reply to "Status of the Generic User Profile Work"**
Source:	**SA2**
To:	**GUP joint Ad-Hoc**
Cc:	**SA1, SA3, SA4, SA5, T2, T2 GUP ad hoc, T3, CN1, CN4, CN5**
Response to:	**UP-010128 (S2-020261)**

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Attachments: **S2-020705**

1. Overall Description:

This LS is sent for ACTION. The 3GPP Joint ad-hoc on Generic User Profile (GUP) invited SA2 to continue the development of GUP Draft Stage 2 (SA2), TS 23.240 v0.3.0. SA2 have now reviewed the document and have decided on a revised structure and content for it. It was decided to concentrate in this specification more on the core network architecture and other related aspects of the GUP rather than on the Data Description Framework (DDF), on which SA2 do not have sufficient expertise. Therefore it was decided that most of the text on DDF should be removed from TS 23.240.

The latest GUP Draft Stage 2 (SA2), TS 23.240 v0.4.0 in S2-020705 is attached to this LS for information of all working groups involved in the GUP work.

2. Actions:

To GUP joint Ad-Hoc.

ACTION: The 3GPP GUP Joint ad-hoc is asked to consider a more appropriate GUP specification for those parts of the Data Description Framework text that SA2 have decided to remove from TS 23.240.

3. Dates of Next SA2 Meetings:

SA2#24	22-26 April 2002	Madrid, Spain
SA2#25	24-28 June 2002	Naantali, Finland

3GPP TS 23.240 V0.~~3~~4.0 (200~~21~~2-~~01~~2)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
3GPP Generic User Profile - Architecture;
Stage 2
(Release ~~5~~6)**

Remove GSM logo from the cover page for pure 3rd Generation documents.

Select keywords from list provided in specs database.

Keywords
<keyword[, keyword]>

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x   the first digit:

1   presented to TSG for information;

2   presented to TSG for approval;

3   or greater indicates TSG approved document under change control.

y   the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z   the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

Editor's Note:

This clause includes a short summary of the 3GPP Generic User Profile as a background information for GUP Architecture definition.

This clause is optional. If it exists, it is always the second unnumbered clause.

1 Scope

Editor's Note: To be completed

This *clause shall start on a new page.*

The present document …

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

Editor's Note: To be completed

[<seq>]   <doctype> <#>[([up to and including]{yyyy[-mm]|V<a[.b[.c]]>}[onwards])]: "<Title>".

[1]   3GPP TR 41.001: "GSM Release specifications".

[2]   3GPP TR 21.912 (V3.1.0): "Example 2, using fixed text".

[xx]   3GPP TS 22.240

3 Definitions, symbols and abbreviations

Editor's Note: To be completed

Delete from the above heading those words which are not applicable.

Subclause numbering depends on applicability and should be renumbered accordingly.

3.1 Definitions

For the purposes of the present document, the [following] terms and definitions [given in ... and the following] apply.

Definition format

<defined term>: <definition>.

example: text used to clarify abstract rules by applying them literally.

3.2 Symbols

For the purposes of the present document, the following symbols apply:

Symbol format

~~<symbol>~~ ~~<Explanation>~~

3.3 Abbreviations

~~For the purposes of the present document, the following abbreviations apply:~~

~~Abbreviation format~~

~~<ACRONYM>~~ ~~<Explanation>~~

4 ~~GUP concept~~Reference Architecture

Editor's Note:

This clause includes different architectural aspects for GUP such as:

3GPP GUP reference Architecture with

- Involved network Elements and Reference points
- Access mechanisms
  - Real time usage of the GUP
  - Management of the GUP
- Syncronisation
- Privacy
- Security
- Charging

~~The objective of specifying the Generic User Profile concept is to provide a~~ *~~conceptual description~~* ~~to enable shared usage of the information content by the different entities. The Generic User Profile concept aims at:~~

~~Defining the GUP components~~

~~Clarifying the mutual influence of the different components~~

~~Specify the concept of active sub-profiles~~
~~[Editor's note: Align with 22.240]~~

~~Specify the storage and physical distribution of GUP data~~

~~Define the ownership of the GUP data~~

~~Define a Data Description Framework for GUP data definitions~~

~~Develop datatypes and components for 3GPP common usage (see the use cases)~~

~~Other Generic User Profile related datatypes and components~~

~~Specify access mechanisms~~

~~Specify a synchronization mechanism~~

~~Specify the protocol for transfer of GUP data between core network elements~~

~~Specify the protocol for transfer of GUP data between the UE and the core network~~

☐Addressing the GUP Policy (e.g. Privacy)

The advantage of specifying a generic concept is that the user profile can easily be extended. All new data that will become part of the Generic User Profile, and all new services that will be developed can use the already existing mechanism defined for the 3GPP Generic User Profile concept. The GUP concept focuses on how to define the GUP, not mandating what must be in it. Only some parts of the User related data are part of the 3GPP Generic User Profile.

The Data Description Framework within the GUP concept provides co-existence with presently available industry standards as well as provides a migration path for these by defining a mapping and a default transport format.

4.1   What is the Generic User Profile?

The Generic User Profile is defined as "the collection of data which is stored and managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, which affects the way in which an individual user experiences services". See 22.240 [xx]. This implies that the GUP data is user related in the sense that it allows personalization, handles variations and controls the behaviour of services or applications.

4.2   Use case examples and related services

Use cases include but are not limited to:

☐UE configuration support

☐Subscription management

☐Content Negotiation (Pull)

☐Content Negotiation (Push)

The GUP concept may be utilized by several features, such as Presence, Push, MExE, MMS, OSA, VHE and more.

Standards related to the Data Description Framework and Data Descriptions include RDF and (CC/PP), developed by the W3C, and the WAP UAProf, developed by the WAP Forum.

4.3   GUP Security and Privacy

Access to Generic User Profile data shall only be permitted in an authorized and secure manner. The secure mechanisms to be applied shall be appropriate to the level of confidentiality of the data.

The security mechanisms shall ensure that the entity storing the GUP data applies the appropriate level of security for the access and transfer of the GUP data as required by the owner.

4.4   The Generic User Profile Data Definition

[Editor's note: Align with GUP stage 1]

The following assumptions are made for the Generic User Profile Data:

☐The Generic User Profile (GUP) is composed of a number of Generic User Profile Components.

☐Each Generic User Profile Component (GUPC) has

-Identification

-Semantic (i.e. meaning of the GUPC)

-Syntax (i.e. vocabulary, GUPC data type)

☐A Generic User Profile Description consists of

-List of Generic User Profile Components
The list contains the identification and type of each UPC

-Set of schemas that defines the syntax and semantic of all Generic User Profile Component types

☐Use XML where suitable

5 GUP ~~Architecture~~Information Model

Editor's Note:

This clause includes:

- Generic GUP Information Model

  - Definition of GUP component

  - Role of Data Description Framework in the GUP. The DDF itself is specified in details in the separate document TS 23.241.

The data description can be split in the followinglogical levels:

- **Data**
  Data stored and / or accessed in a User Profile

- **Data Description**
  describes the data contained in the User Profile. (This is also called the Schema level.)

- **Data Description Framework**
  Defines how to create the data description. (This is also called the Schema-Schema level i.e. the Schema describing the Schema, which describes the data.)

Editor's note: Revise to clarify the relation to the GUP definition; fix the colours.
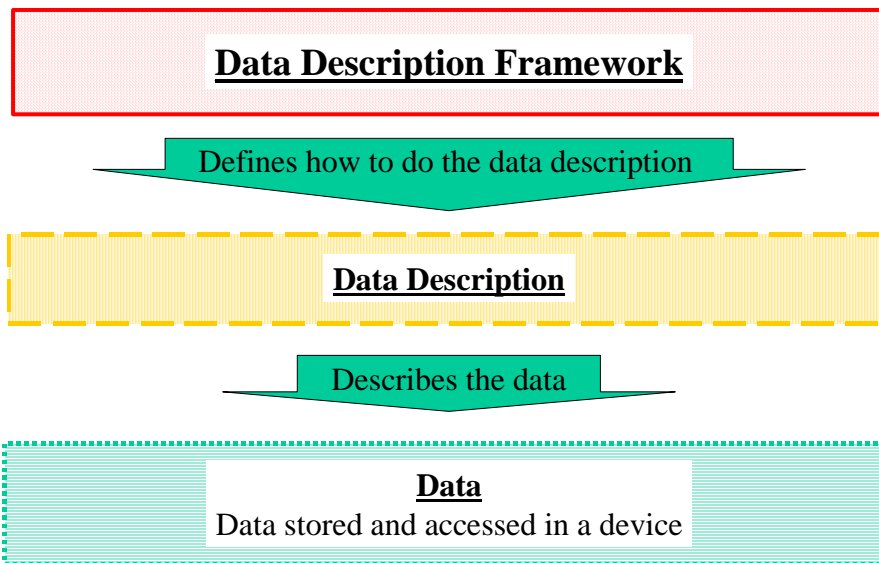

Figure 5.1: Data Description Framework logical levels

5.1 Data Description Framework

The Data Description Framework defines the method to describe the data in a User Profile. It defines the structure of the data description.

It is standardised and used for all User Profiles.

The Data Description Framework also defines a default representation (or transport format) of Data Descriptions and the data in a User Profile.

5.2 Data Description

A specific User Profile will be described, according to the Data Description Framework, resulting in a Data Description.

5.3 Data

The structure and semantic of the data in the User Profile is described in the Data Description. The Data Description Framework also defines a default representation of the data in the User Profile.

5.4 A use case example: UE Configuration

This is an example showing how the Data Description Framework, a Data Description and the related data can be used. A User Equipment (UE) Configuration Support System is used as an example and the data described in a Data Description is the data used to configure or personalise a UE.

Figure 5.2 illustrates how the Data Description Framework, Data Description, and Data interrelate.

The **Data Description Framework** defines the syntax and semantics of the Data Description. The **Data Description** is describing the **Data**, i.e., device configuration, which can be accessed by the UE Configuration Support. The Data Description describes the structure or syntax of the configuration data. The semantics or meaning of data are also given using normal language.

There is only **one** Data Description Framework. As a consequence, this framework is common to all device types. For each device type, there is one Data Description; thus, **several hundred** Data Descriptions will exist. The device configuration data is specific to each unique device; thus, **several million** device configurations will exist.
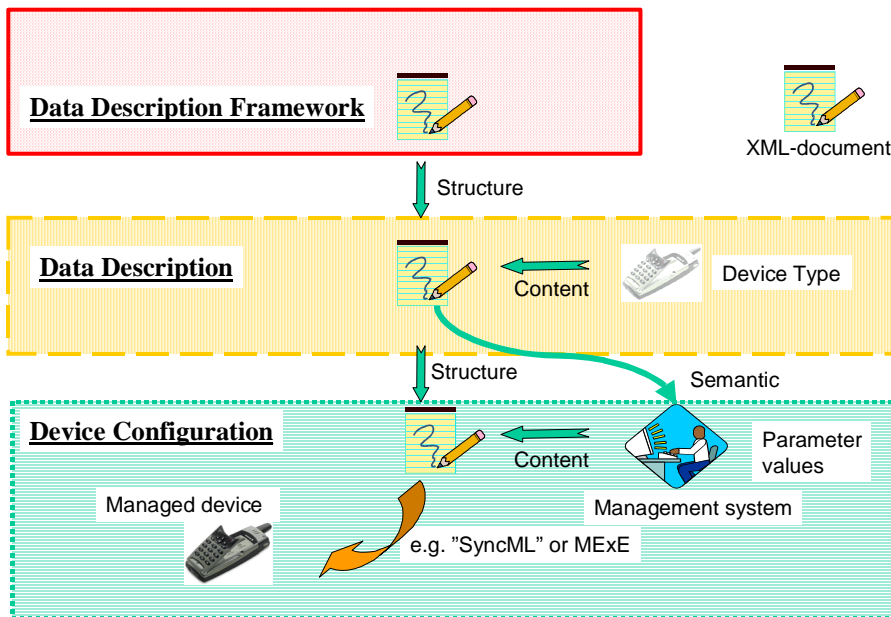
Figure 5.2: Usage of Data Description Domains in User Equipment configuration support

Editors note: further elaboration of this section required.

5.1 Classification for supporting of selection of the Profile Components

The purpose for this classification of 3GPP Generic User Profile data is to:

- Support grouping of data in Profile Components.

- Select the storage node or nodes.

- Select synchronisation principle.

In this Stage 2 specification the classification principles are elaborated and guidance how to group data in components is included.

This section contains a non-exhaustive list of classification criteria. For each criterion there are examples, see TS 22.240[xx].

[Editor's note: a, b, and c need further elaboration]

(a)Information Characteristics
(b)Storage Location
A general feature of the 3GPP Generic User Profile is that the different nodes are consumers for a certain subset of the data and are sources for another part. As a result, the parts of the 3GPP Generic User Profile are stored in different places. The same information can also be stored in many places.

- Core Network

  - Home network

  - Serving Network

□**User Equipment (UE)**

- ME (MT and TE)

- UICC

□**Application Valued Added Service Provider Equipment**

[Editor's note(from stage1): Application Service Provider Equipment – need to clarify definition. For both ownership and storage location]

(c)Ownership

(d)Data usage Role:

The applications accessing the 3GPP Generic User Profile data are classified based on the purpose of the access.

□**3GPP Generic User Profile Data: Consumer**

These are consumers (such as applications or network entities), whose behaviour is controlled or influenced by the 3GPP Generic User Profile content. The consumer understands the meaning of the data and can use the information contained in the data. This is the most common usage role

□**3GPP Generic User Profile: Data Management**

These are functions supporting the management of the content of 3GPP Generic User Profile, which include the creation, modification and deletion of components. These functions may be utilized by, e.g., the operator, a user or group of users, or a third party service provider

- Personalization of User data:

These applications support the User in updating the 3GPP Generic User Profile content. These are applications controlled by the individual User, possibly interactively

- UE Management:

xx

- Subscription Management:

(Includes service provisioning data management)

- Service Customization

The GUP related data that originates in a service provided by any service provider is controlled by the SP

□**3GPP Generic User Profile: Data Maintenance**

Application supporting the integrity and consistency of the distributed 3GPP Generic User Profile. The applications have knowledge of the syntax of the data, but not the semantics of the data. The application shall maintain the data but not use the information represented by the data.

- Synchronization

- Backup Restore

(e)Value Change Frequency

The values of an attribute stored in the 3GPP Generic User Profile have different frequencies of change.

□**Constant**

the value is the same in a certain context. It can, for example, be the same for all devices of a certain type.

□**Static**

the value is constant and shall not change. Needs to be clarified

□**Semi-static**

A semi-static value is a value that is seldom changed and can in most cases be regarded as static for a long time.

☐ **Dynamic**
    The value can be changed frequently.

(f) Data Object Life Time:
    The lifetime of and data object can be classified as follows:

[Editor's note: needs to be elaborated, try to find different naming than the ones used in the previous classification]

☐ **Static**
    The data object exists as long as the profile exists.

☐ **Dynamic creation**
    The data object can be created .

☐ **Dynamic deletion**
    The data object can be deleted.

6   Motivation for the 3GPP Data Description Framework

The Data Description Framework defines the method to describe the data in a Generic User Profile. It defines syntax and semantics of data descriptions, a default representation (or transport format) of data descriptions, and the data in a Generic User Profile.

It is not intended to substitute Data Description Frameworks that already exist. The 3GPP Data Description Framework shall be used, where appropriate, when Generic User Profiles are specified for new applications.
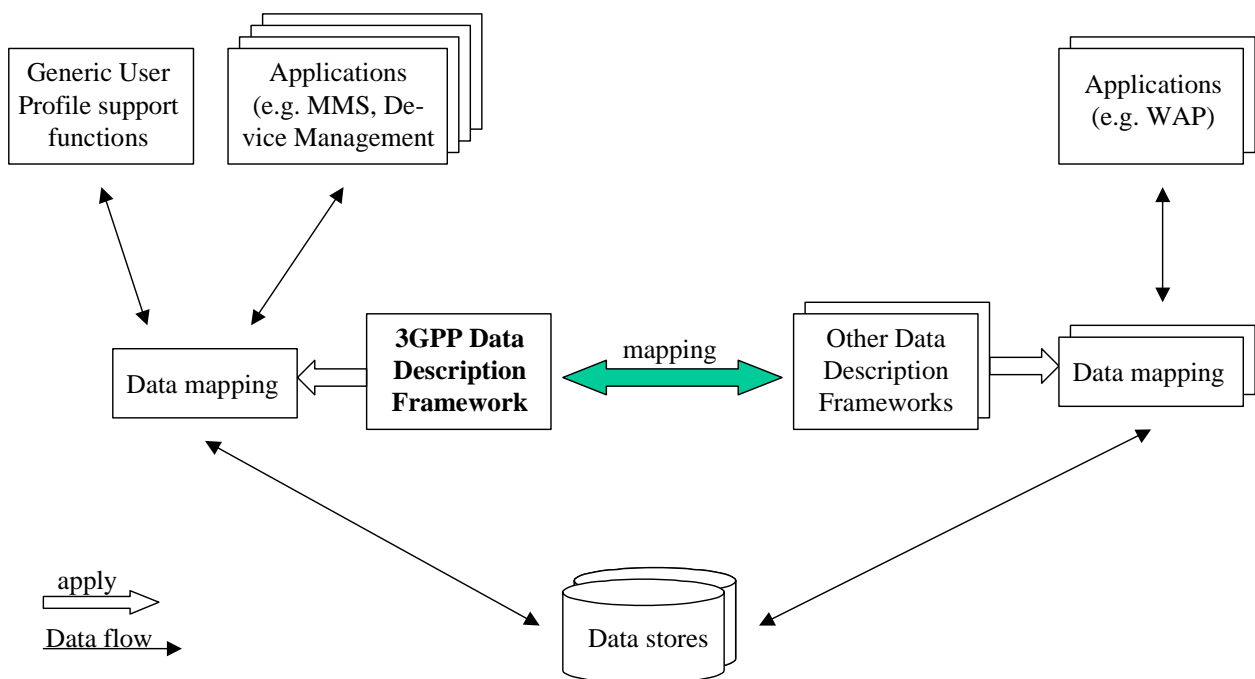

Figure xx: Data Description Framework Coexistence

Motivation to specify a new Data Description Framework:

☐**Applicable to many 3GPP applications**

The establishment of the Data Description Framework is supposed to avoid a growing number of different description methods by providing a favourite alternative for user profiles of emerging applications. This means that the 3GPP Data Description Framework is specified once and may be used for various applications afterwards.

☐**Tailored to the needs of 3GPP**

The Data Description Framework is defined specifically for the requirements of 3GPP. This comprises common characteristics of mobile networks as well as coexistence with existing frameworks like WAP UAProf and SyncML Device Management.

☐**Ease of data handling**

The general handling of Generic User Profile data including access and synchronisation is easier because applications can benefit from the wide deployment of the Data Description Framework. The number of necessary data exchange protocols can be minimised.

☐**Efficient support mechanisms**

Generic User Profile management and maintenance applications for devices are cost-efficiently supported.

☐**Reduced data processing**

The 3GPP Data Description Framework reduces the effort required to resolve and process user profile data and descriptions in networks, user equipment, and application servers. One example is the specification of a clear XML-based data description.

☐**Ease of extensibility**

The Data Description Framework provides the means to allow uncomplicated changes and extensions of data descriptions and data exchange formats. The introduction of new attributes and components is thereby simplified.

☐**Simplified formats through generic mapping**

Generic mapping to other formats and representations achieves flexibility and minimises the possibility of errors.

No existing technology adequately covers all of the above points, thus a new solution, based on the best of the old, must be defined to achieve these goals.

7 Requirements on Data Description

[Editor's note: Align with chapter 12 from stage 1, Tdoc 44, 60,]

This is an initial list of requirements on the description of the User Profile. It is important that this list includes all the requirements on the data description coming from the different usage of the data, in order to promote the common data description.

7.1 Fulfil Functional Requirements from use cases

The requirement from the Use Cases describing functions related to User profile: read/write/delete/add elements in the user profile…

7.2 Security and accessibility

It is also important that the data description fulfil the requirements related to security such as access rights.

7.3 Re-usable description components

It must be possible to divide the description in parts called description components. A description component can be used in many User Profile descriptions to be re-usable.

Motivations:

☐ Identical parts of the User Profile are described once

☐ The responsibility of defining description components can be distributed between different organisations, standardisation bodies or technical groups in 3GPP.

☐ Some description components are standardised and some components are late defined and/or just published (manufacturer specific components).

7.4 Data syntax

The data description must have a good way to describe structure, ranges, default values of the data elements.

Motivations:

☐ Decrease the errors when handling the data.

☐ It will help the development of management tools.

☐ Automatic validity checks of values possible.

7.5 Data semantic

The data description must have a good way to describe the meaning (semantic) of the data elements.

Motivations:

☐ Decrease the errors when handling the data.

☐ It will help the development of management tools.

7.6 Computer parse-able Data Description

The data description must be computer parse-able and interpretable by human beings.

Motivations:

☐ There will be a significant amount of data description and it will be very costly if manual translation is needed.

☐ An automatic translation to other description formats can be implemented.

☐ It will help the development of management tools.

7.7 Define a Default Transport Format

Define a default transport format for the Data Description and for the Data

7.8 Support Backward compatibly

The data description must support co-existence with other already existing description method.

Motivation:

☐ Avoid to redo all existing data descriptions

7.9 Extendible

The data description shall support the addition of new data/description components. That gives the possibility, as well, to start with a small set of features and then adds support for more things.

Motivations:

- The introduction of the data description must be done stepwise.
  Potential first application areas are Terminal Configuration and Capability Information Exchange.

- In the future more data will be part of the user profile, it should be easy to add it in the selected data description

- Add easily Manufacturer specific data/description components

7.10 Data Oriented

The data description should describe the data and not an interface to the data.

Motivations:

- The User Profile is a set of data and not an interface to a program used to access the data. It is probably more cost efficient to use a schema definition language, such as XML schema, then an interface oriented approach.

- It is easier to map an interface to the data on the data description, than the reverse.

7.11 Expressiveness Balance

There must be a balance between the expressiveness to describe data and the needed complexity in the implementations using data descriptions.

-

8 Data Description Logical Levels

[Editor's note: Align with T2 stage 2]

The data description can be split in the followinglogical levels:

- **Data**
  Data stored and / or accessed in a User Profile

- **Data Description**
  describes the data contained in the User Profile. (This is also called the Schema level.)

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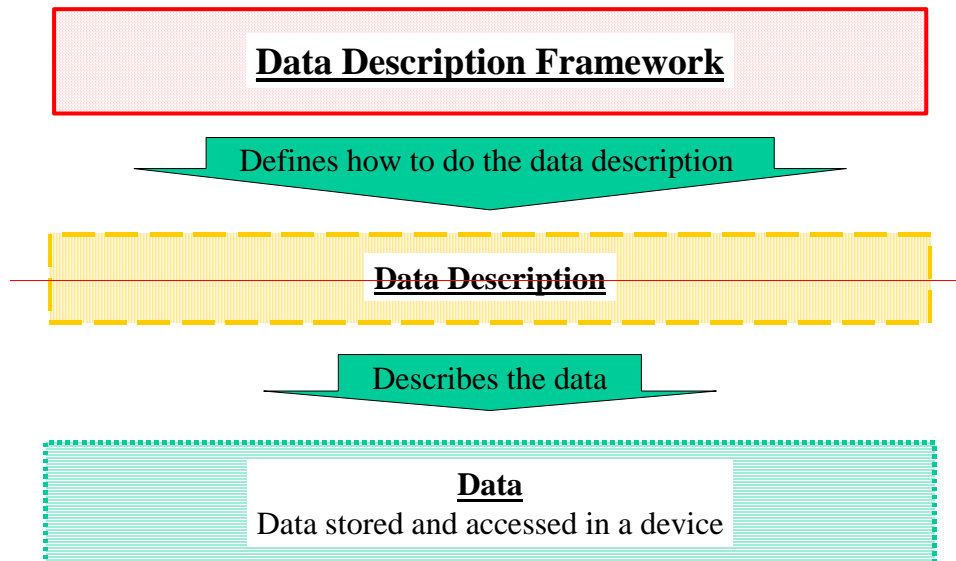
Figure yy: Data Description Framework logical levels

8.1 Data Description Framework

The Data Description Framework defines the method to describe the data in a User Profile. It defines the structure of the data description.

It is standardised and used for all User Profiles.

The Data Description Framework also defines a default representation (or transport format) of Data Descriptions and the data in a User Profile.

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A specific User Profile will be described, according to the Data Description Framework, resulting in a Data Description.

8.3 Data

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8.4 A use case example: UE Configuration

This is an example showing how the Data Description Framework, a Data Description and the related data can be used. A User Equipment (UE) Configuration Support System is used as an example and the data described in a Data Description is the data used to configure or personalise a UE.

Figure X illustrates how the Data Description Framework, Data Description, and Data interrelate.

The **Data Description Framework** defines the syntax and semantics of the Data Description. The **Data Description** is describing the **Data**, i.e., device configuration, which can be accessed by the UE Configuration Support. The Data Description describes the structure or syntax of the configuration data. The semantics or meaning of data are also given using normal language.

There is only **one** Data Description Framework. As a consequence, this framework is common to all device types. For each device type, there is one Data Description; thus, **several hundred** Data Descriptions will exist. The device configuration data is specific to each unique device; thus, **several million** device configurations will exist.
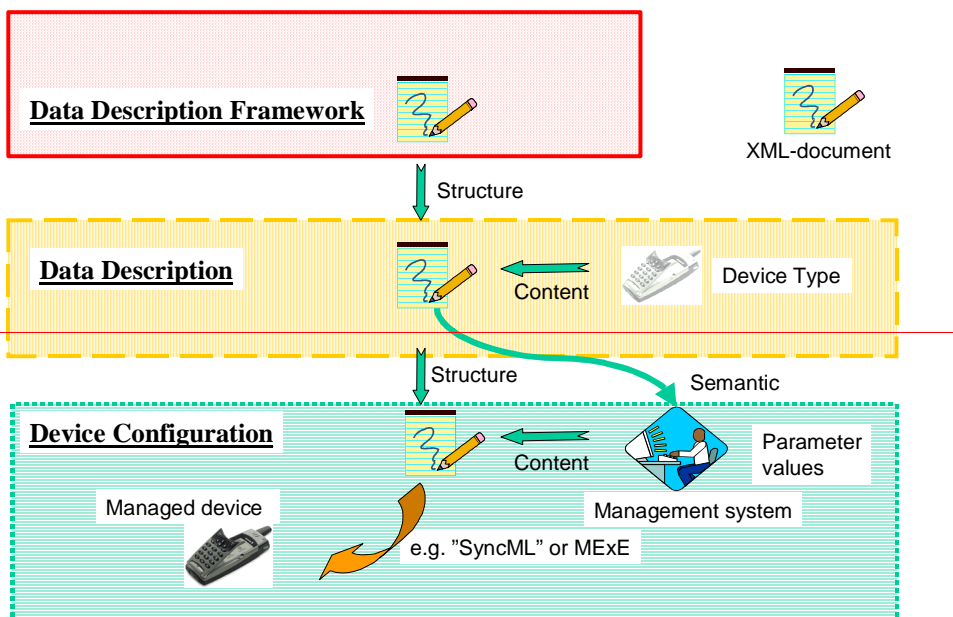

Figure X: Usage of Data Description Domains in User Equipment configuration support

In the figure, a number of XML-documents may be found. The next few paragraphs provide short descriptions of the purpose of the different XML-documents.

The Data Description Framework contains a number of XML-schemas (XML-documents) describing the allowed structure of a Data Description. Tools used to create Data Descriptions can be controlled by these XML-schemas.

The Data Description comprises a number of XML-documents describing the data used to configure a certain type of device. The main parts of the Data Description are the descriptions of the syntax and of the semantics. The syntax defines the allowed structure and values in the device configuration and may be used to check the validity of the data. The syntax is used by the Management System. The semantics guide the understanding and selection of values and are used by persons checking or changing the configuration data. The Management System presents semantics-based information to Management System user. The Management System is made **device-type-independent** through the use of the device configuration data descriptions.

The configuration data, in this example, is represented by an XML-document. The data can be transferred using SyncML device management protocol, a MExE application, or some other means. The following outlines an example of the device configuration data transmitted to a device:

```
<Settings>
 <AudioSettings>
  <RingVolume>2</RingVolume>
  <IncreasingRing>ON</IncreasingRing>
  <VibratingAlert>ON</VibratingAlert>
  ...
  <PersonalRing>
```

```
            <Contact>Anders</Contact>
            <Melody>13</Melody>
        </PersonalRing>
        <PersonalRing>...</PersonalRing>
        ....
    </AudioSettings>
    <DisplaySettings/>
    <VoiceControlSettings/>
    <HandsfreeSettings/>
</Settings>
```

Annex A (informative):
~~Terminal Management and Data Description~~Examples of 3GPP Generic User Profile Usage

Editor's Note: To be completed.

~~One usage of some of the data included in the User Profile is in the Terminal Management framework.~~

~~In the SyncML initiative there is some work going on to specify a device management protocol based on SyncML.~~

~~The following picture shows where the Data Description architecture can be used together with the SynML Device Management approach.~~

Terminal Management with SyncML
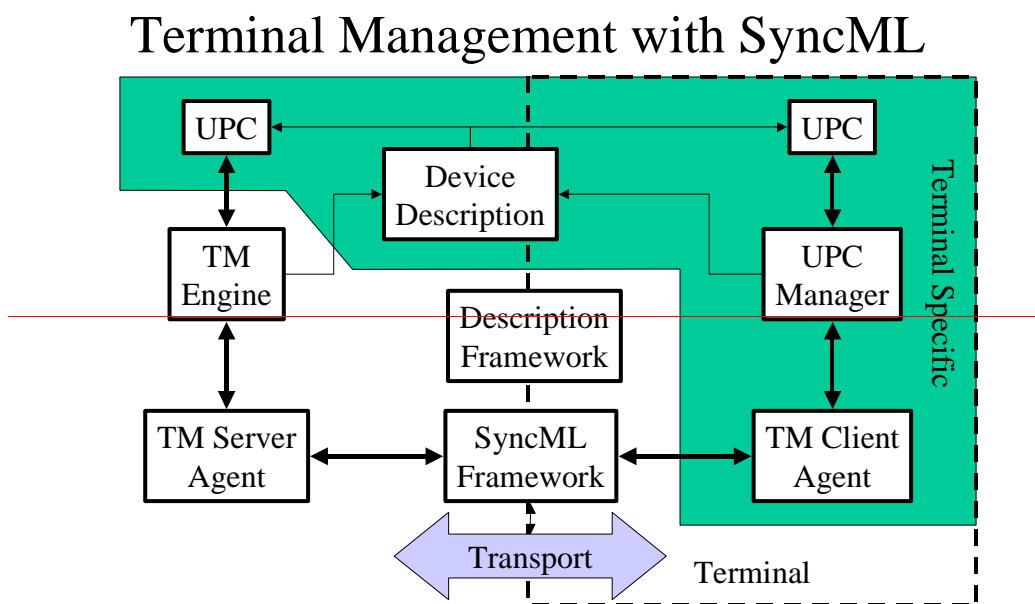
~~The effort on standardisation to have a common way to describe data implies a separation on the work, in order not to define it in different fora. The following picture shows a proposed way to split the work between 3GPP and SyncML Device Management.~~

~~Editor's note: Colours to be aligned with above. Entire section: thorough revision.~~

Standardisation Split
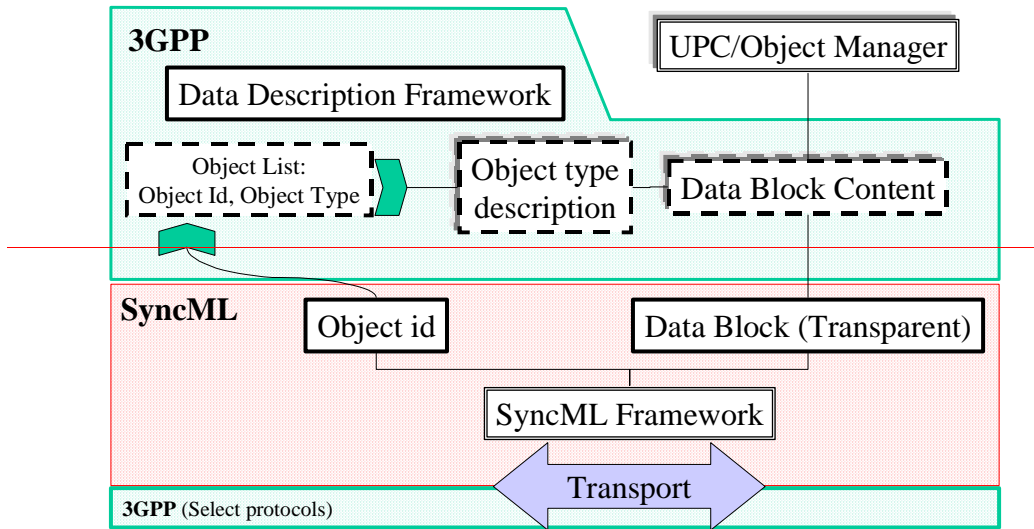
As a good way to achieve the objective, the data description framework goes into 3GPP, leaving to SyncML the protocol and the Object Id to identify the components from the User Profile that the device management will handle.

Annex B (informative):
Change history

It is usual to include an annex (usually the final annex of the document) for specifications under TSG change control which details the change history of the specification using a table as follows:

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
01-11-13		UP-010103			First version of the draft specification from UP-010065		
01-11-14		UP-010109			After UP#6 V0.2.0		
01-12-05		UP-010136			After UP#7 V0.3.0 Added changes from UP-010116 , UP-010134 and UP-010135 Reference added to GUP stage 1 TS 22.240 Chapter 8 moved under chapter 4 Chapter 10 moved to Annex A Editorial changes		
02-02-19		S2-020705			Outcome of SA2#23, version 0.4.0 with revision marks		